

forum journal

Summer 2005 • Volume 19 • No. 4

Building Trades Education in the 21st Century



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FORUM



NATIONAL TRUST
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contents

Summer 2005 • Volume 19 • No. 4

Trades Education in the 21st Century <i>David Mertz</i>	4
Why the Trades Matter for Preservation: A Half-Century of Promoting Traditional Building Skills for Preservation <i>Lisa Sasser</i>	7
Trades Education and the Matrix: Academic, Vocational, and Experiential <i>Bryan Blundell</i>	16
Lessons for Introducing Young People to the Traditional Building and Preservation Arts <i>Morris Hylton III</i>	23
Putting Value Back Into Craft Education <i>Gerard C. J. Lynch</i>	30
Thoughts on Developing and Promoting Preservation Building Trades Training <i>David C. Overholt</i>	37

Cover photos:

Large Photo: Hopewell Furnace National Historic Site, Elverson, Pa. Photo by George Martin.

*Top Left: Preservation Arts & Technology program. Photo courtesy of New Jersey Institute of
Technology's Center for Architecture and Building Science Research.*

Center: Belmont Technical College. Photo by David Mertz.

*Top Right: President Lincoln and Soldier's Home National Monument. Photo by David
Overholt.*

Trades Education in the 21st Century

.....David Mertz

Over the past century the preservation movement in America has grown by leaps and bounds. Today the movement has evolved into a highly complex network of university trained professionals and dedicated volunteers.

As the movement has gained momentum, the need for highly trained and educated craftspeople has followed suit. One of the chief complaints echoed by preservation architects, museum administrators, and homeowners is that they can't find craftspeople sensitive, educated, and skilled enough to do preservation work, especially at the local level. This problem is not unique to the United States; it's a worldwide issue in all but Third World countries where the trades are still at the top of the wage scale and considered highly desirable careers. The challenges are clear: How can we recruit young people into the preservation trades, and what can we do better to keep them involved once they are in? How can we elevate the status

of the trades to levels historically experienced prior to the World Wars?

In this issue of *Forum Journal*, the leading players in the International Trades Education Initiative, an effort by the Preservation Trades Network (PTN) and the World Monuments Fund (WMF), will examine these questions and present their views on what trades education is or should be about and how it fits into the overall international preservation movement. While individual trade organizations have struggled with this issue to varying degrees of success, PTN and WMF hope to establish a future framework that is broad enough to encompass all the preservation trades and yet specific enough when it comes to the "preservation" component to insure the historic integrity of a site. In essence, the time has come to think "outside the box" and explore the root of these problems and become creative in identifying possible solutions.

Lisa Sasser, current presi-

dent of the Preservation Trades Network, starts by briefly outlining the history of trades education in the United States in the past 50 years and the role that organizations such as the National Park Service and the National Trust have played in supporting trades education.

Bryan Blundell, PTN's managing director who has tirelessly promoted improving trades education, will then break down current practices into their basic delivery components: academic, vocational, and experiential and discuss how each approach plays an important role in the education of the preservation tradesperson.

Morris Hylton, new project development manager for the World Monuments Fund, focuses on the need to interest a new generation in traditional building trades. He identifies and comments on projects designed to introduce K-12 students to architecture, historic preservation, and the building arts and highlights efforts to create a model curriculum at the Brooklyn School for the Building Arts in New York.

The experiential view of the topic is delivered by Gerard Lynch, a master mason from England. Lynch uses his

experience as a trades educator to explore the value of the experiential side of trades education and provide a modern-day apprenticeship model for young craftspeople.

Finally, David Overholt, preservation projects director at President Lincoln and Soldiers' Home and National Monument in Washington, D.C., brings his unique perspective as a craftsman, manager, and educator to the discussion. Overholt, who for years managed the Trust's craft training program at Lyndhurst, provides his thoughts on what makes a good craftsman and preservation technician.

While these papers provide a brief and general overview of the current status of trades education in America and abroad, they are by no means all encompassing. This past decade has seen a flourishing of activity as nonprofit organizations, public and private educational institutions, and trade organizations have begun to offer numerous opportunities for training and education in a variety of



Since 1989 the Building Preservation Technology Training Program at Belmont Technical College in St. Clairsville, Ohio has provided students with academic and practical training in the preservation trades. Here a student works on a stained glass panel. Photo by David Mertz.



In addition to academic training, students in the building trades must also have hands-on experience. In the above photo students at Belmont Technical College create a plaster medallion. Photo by David Mertz.

on the future of preservation trades education in the 21st century.

David Mertz is the program chair for Building Preservation Technology at Belmont Technical College.

For more information concerning the International Trades Education Symposium, please call the Preservation Trades Network at (301) 315-8345 or write to PTN, P.O. Box 1768, Rockville, MD 20849-1768. E-mail requests for symposium information can be sent to dmertz@btc.edu.

preservation trades. In an attempt to begin to organize and understand the underlying structure of these activities, the Preservation Trades Network is initiating a multi-year study on trades education.

In October 2005, for the first time in recent history, many of the leading educators and practitioners of the traditional building arts will be coming to the table in the International Trades Education Symposium to be held at Belmont Technical College in St. Clairsville, Ohio. It is hoped that the Belmont Symposium, the first of a multi-year project, funded in part by the World Monuments Fund, will have a significant impact

Why the Trades Matter for Preservation: A Half-Century of Promoting Traditional Building Skills for Preservation

..... Lisa Sasser

In 1853 when Ann Pamela Cunningham called on the ladies of America to save the home of George Washington as it fell into ruin along the banks of the Potomac River, she probably didn't pause to consider whether there would be carpenters, masons, plasterers, painters, and roofers with the skills to restore it. Today, 150 years later, she might have struggled to find an experienced plasterer.

In the 1994 book *How Buildings Learn* author Stewart Brand observed: "It used to be that old buildings were universally understood to be less valuable than new. Now it is almost universally understood that old buildings are more valuable than new."¹ Inventing the concepts, language, and legal tools to preserve such places as Charleston, S.C., and San Antonio, Tex., and many others has been almost a century-long exercise in demonstrating the value of "old buildings." Asking why the trades matter is like asking why old buildings matter.

A disaster such as Hurricane Hugo, which devastated Charleston in 1989, dramatically illustrates that conservation of the built environment is fundamentally dependent on the skill and availability of the men and women who do the actual physical work of preservation. In the weeks following the storm, the shortage of tradespeople with the knowledge and skills to repair the historic fabric of Charleston's older buildings quickly emerged as one of the greatest challenges of the rebuilding effort.

1950s and '60s Efforts to Provide Training for Craftspeople

Anecdotal evidence suggests that a large number of the inquiries received by historic preservation offices are from building owners desperate to find qualified contractors and tradespeople for preservation projects. The perception that the trades are in decline and traditional building skills are



The National Park Service continues to offer workshops in the preservation trades for park maintenance employees, such as this historic plaster repair workshop at Pennsylvania's Hopewell Furnace National Historic Site in October 2004. Photo by George Martin.

disappearing is not new. In 1956 National Park Service Historical Architects Charles E. Peterson and Henry Judd requested that the U.S. Civil Service Commission create a Building Restoration Specialist series in federal employment to provide appropriate recognition and compensation for the handful of master craftsmen working on preservation projects. In the 1960s Peterson organized “Carpenter’s Carnivals” for the historical architects and preservation specialists in the National Park Service to learn from each other and share preservation techniques. Commenting on the vital role of the trades, Peterson wrote:

The men who actually assemble a building on its site—by hand or with machines—work closely with the architect. In practice, it is just about impossible to define the boundaries between the two vocations. Architects must still rely on traditional practices and standards of the trades, for no building can be built with all of its details fully covered by drawings and written specifications.²

The Whitehill Report Addresses the Shortage

In 1967 the National Trust Committee on Professional and Public Education for Historic Preservation and Restoration issued the “Whitehill Report,” which examined both the state of architectural education for historic preservation and the condition of the traditional building trades.³ The committee found that the role of the trades was no less critical than that of the academic disciplines in conservation of the built environment. The committee also believed that these skills were in danger of dying out, and called for urgent action to insure their survival:

Technology has displaced the traditional building craftsmen as effectively as industry previously displaced the hand-craftsmen who made the objects

of domestic use and commerce. Not only has prefabricated and disposable construction destroyed the general need for such craftsmen, but artificial materials have replaced many of the natural materials used in earlier buildings whose properties are part of the craftsmen’s lore. These ancient crafts are a significant part of our national cultural resources. Their continuation as a living tradition is essential to insure the authentic conservation of our early buildings.

The survival of these crafts will require the most thoughtful solutions to human as well as economic problems. No existing formula can be used. A new solution must be found, based on a national realization of the importance of these skills to our continuing culture. Public knowledge of the standards and objectives required in such craft-work should be developed through education at all levels. Practical means for providing careers in such work need to be found through the joint efforts of government and private initiative. These objectives cannot be accomplished on a limited basis no matter how dedicated such projects might be, for the need is so urgent and so general in scope that it must be recognized as a national responsibility, requiring national leadership, direction, standards, and continuity.⁴

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“These ancient crafts are a significant part of our national cultural resources. Their continuation as a living tradition is essential to insure the authentic conservation of our early buildings.”

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The committee recommended that the National Trust establish a Conservation Council for Traditional Building Crafts, and develop guidelines and standards for the establishment of regional trades training centers. The National Park Service followed in 1968 with a proposal to establish the William Strickland Preservation Center as a three-year pilot program to be funded by the National Park Foundation. The Strickland Center was envisioned as a component of the nationally coordinated effort proposed by the Whitehill Report, including a Building Crafts Program and

Professional Field Program. Although the National Park Foundation endorsed the proposal, it was unable to secure the necessary funding.

The Park Service operated a small Historic Building Crafts Center at Independence National Historic Park in Philadelphia until the construction program came to a halt in 1969, and all but 3 members of the 15-person preservation crew were laid off. A 1971 “Conference on Training for the Building Crafts” convened by the National Trust affirmed the commitment to the working principles of the Whitehill Report, and restated the need for establishment of preservation trades training centers by the National Park Service, the National Trust, and other entities.

In 1973 the National Trust revisited the Whitehill Report. The Trust conducted a survey of existing trades education and apprenticeship programs and found that mechanical and technical skills in the building trades were not dying out but were successfully adapting to changes in building technology and market demand.⁵ Overall, findings of the review suggested that the focus of the Whitehill Report on “traditional building crafts” as a distinct category, divorced



The Dry Stone Conservancy partners with various governmental agencies and historic properties to provide restoration and training to dry stone masons seeking professional certification. Pictured above is the recently reconstructed Sunken Road stone wall at the NPS Fredericksburg & Spotsylvania Battlefields National Military Park in Virginia. Photo courtesy of the Dry Stone Conservancy.

from the building trades generally, created an unrealistic view of the actual supply and capabilities of the trades.

The National Trust drafted new recommendations which called for the development of short courses in preservation skills, establishment of a small training program at a Trust property, and creation of partnerships with trades education programs to introduce preservation philosophy and methodology into existing curricula. The Trust's Education Services Division developed a workshop which was held at Lyndhurst, a Trust property in Tarrytown, N.Y., to provide preservation training for two to three craftspeople. Other Trust properties developed training courses in his-

toric property maintenance, and craft sessions were added to National Preservation Conferences.

The National Park Service continued to evaluate the need for an in-house training program and in 1977 established the Williamsport Preservation Training Center in Williamsport, Md. Under the direction of James S. Askins, a preservation craftsman and National Park Service employee since 1963, the WPTC program consisted of a three-year training period executing "hands on" project work on NPS historic structures throughout the National Park system. A permanent staff of journeyman carpenters and masons were employed to train the six to seven interns enrolled in the program. Graduates filled positions as preservation specialists in Park staffs, program centers, and regional offices. The program continues to operate as the NPS Historic Preservation Training Center (HPTC) in Frederick, Md.

New Programs Promote Restoration Skills

During the 1970s publications such as *The Old House Journal* helped generate public interest in traditional building meth-

ods and create markets for builders with restoration skills. RESTORE, Inc., a nonprofit educational organization chartered in 1976, began offering a range of workshops and courses on the technology of architectural preservation, targeted to an audience of trade workers, design professionals, and property owners. The Preservation Education Institute, in Windsor, Vt., was established as a training and certificate program in historic preservation skills, technology, and philosophy and has served more than 2,000 students since its inception in 1982.

In 1984, the Timber Framers Guild was formed to provide educational and networking opportunities and publications related to the craft of timber frame construction. The Guild has evolved into an organization of more than 2,000 members with a highly developed preservation component in the Traditional Timber Frame Research and Advisory Group (TTRAG). Graduates of the North Bennett Street School in Boston established businesses and found jobs with federal and state agencies and nonprofit organizations. Belmont Technical College in St. Clairsville, Ohio, began offering an associate degree in Building Preser-

vation Technology in 1989.

Federal programs continued to address the issue of preservation and trade skills. Lee Nelson of the National Park Service provided the inspiration for development of a "Catalog of Professional Skills Needed by Historical Architects" that serves equally well as a training plan in historic building technology and preservation philosophy for preservation specialists. Emogene A. Bevitt, formerly a program analyst in the NPS Technical Preservation Services Division, and Hugh C. Miller, former NPS chief historical architect, guided and developed the catalog, which was released in 1986 as a part of the "Skills Development Plan."

A 1986 report of the U.S. Congressional Office of Technology Assessment on *Technologies for Prehistoric and Historic Preservation* cited the need for training programs to:

... return to craftsmen the decision-making capability that has been gradually and systematically denied them by the construction and building industries for the last few decades. Craftsmanship has been sacrificed to uniformity, mass-production, and economy. Restoration is challenging, varied, and often difficult. Every



For more than 20 years, the Timber Framers Guild has promoted the centuries-old craft of timber framing. The Guild offers training programs and conferences and serves as a resource for professionals and the public on the art of timber framing. Photo by Joel C. McCarthy.

practitioner involved in structural restoration and rehabilitation should comprehend the behavior of materials and their basic physical and chemical properties.⁶

This report was instrumental in the creation of the National Center for Preservation Technology and Training (NCPTT) in Natchitoches, La., in 1992. Congress created NCPTT as an interdisciplinary program of the National Park Service to advance the art, craft, and science of historic preservation in the fields of archeology, historic architecture, historic landscapes, objects and materials conservation, and interpretation. One of the missions

of NCPTT is to research, develop, and provide training for preservation and conservation practitioners. Since its inception, NCPTT has provided support for several trades-related projects conducted by the Timber Framers Guild, Dry Stone Conservancy, and Preservation Education Institute.

In 1993 the World Monuments Fund (WMF) sponsored the conference “Employment Strategies for the Restoration Arts: Craft Training in the Service of Preservation” to address “the continuing erosion of the historic fabric of New York City; the continuing loss of craft skills that produced the architectural legacy of the city; and the growing disintegration of the social fabric of the city.”⁷ More than 70 preservationists, architects, and representatives of government agencies, foundations, and existing craft training programs heard presentations on preservation training programs and partnerships. Some of the efforts highlighted included the Cathedral Stoneworks program at the Church of St. John the Divine, a summer youth employment initiative in restoration trades at the Church of St. Ann and the

Holy Trinity in Brooklyn Heights, Youth Action/Youth Build programs, and the “Churches: Symbols of Community” program of the New Mexico Community Foundation.

One of the main proposals to emerge from the conference was the creation of a High School for the Preservation Arts in the New York City school system. Brooklyn City Council Member Kenneth Fisher championed the initiative, which was subsequently developed by the New Jersey Institute of Technology Center for Architecture and Building Science Research (NJIT Center) in partnership with the New York City Board of Education, with support from the World Monuments Fund. In March 2000, the Board of Education approved the establishment of the Brooklyn High School of the Arts. The first graduating class of the for the Preservation Arts & Technology High School received their diplomas in 2004. (For more on this, see “Lessons for Introducing Young People to the Traditional Building and Preservation Arts,” in this issue.)

New educational programs in the preservation trades have emerged in increasing numbers in recent

years. In Lexington, Ky., the Dry Stone Conservancy offers the only national certification program for drystone masons in the United States. The program is modeled on the professional registry of the Dry Stone Walling Association of Great Britain (DSWA). The College of the Redwoods in Eureka, Calif., established the Historic Preservation and Restoration Technology Program, the first certificate program west of the Mississippi, in 1996. Harford Community College in Bel Air, Md., began a Building Preservation and Restoration certificate program in 2003. The School of the Building Arts in Charleston, S.C., which has been renamed the American College of the Building Arts, is preparing to offer the first four-year degree program in the preservation trades in the United States.

The Preservation Trades Network Formed

The Preservation Trades Network was founded in 1995, initially as a Special Task Force of the Association for Preservation Technology, to address the perception that the role of tradespeople and contractors was not adequately recognized or acknowledged in the preser-

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The development of trade skills, whether through apprenticeship, individual learning, or academic programs, is a lifelong process.

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vation industry. A nonprofit membership association, PTN provides education, networking, and outreach based on the principle that opportunities for education, employment, and compensation of people in the trades are directly reflected in the quality of the built environment and the effective stewardship of cultural heritage.

The British wood turner David Pye defined “craftsmanship” as the product of the judgment, knowledge, skill, and dexterity of the worker.⁸ Men and women in the trades who demonstrate these qualities are involved in the maintenance, repair, construction, and long-term conservation of the built environment both within and outside the building industry and the preservation mainstream. The work of the trades embraces the continuity of traditional craft practices and at the same time the appropriate application of new technologies, materials, and methods. The development of trade skills, whether through apprenticeship, individual learning, or academic programs, is a lifelong process.

The year 2007 will mark the 40th anniversary of the Whitehill Report. Although some of its assumptions about

the nature of the trades were flawed, it remains significant as the first formal recognition by the principal preservation agencies and institutions of the vital role of the trades in the conservation of cultural heritage. The preservation movement has grown and developed in ways that could hardly have been anticipated by the authors of the Whitehill Report. The evolution of the trades has been a significant part of that process. As long as the built heritage continues to be valued there will be a need for men and women to do the physical work of maintaining and preserving it.

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Lisa Sasser is president of the Preservation Trades Network, and a graduate of the National Park Service Williamsport Preservation Training Center.

NOTES

¹ Stewart Brand, *How Buildings Learn: What Happens After They're Built* (Willard, Ohio: R.R. Donnelly & Sons Company, 1994), p. 109.

² Charles E. Peterson, “The Role of the Architect in Historical Restorations,” *Preservation and Conservation: Principles and Practices*, Sharon Timmons, ed. (Washington, D.C.: The Preservation Press, 1976), p. 5.

³ In January 1967, the chairman of the National Trust for Historic

Preservation appointed a Committee on Professional and Public Education for Historic Preservation and Restoration. Walter Muir Whitehill, director and librarian of the Boston Athenaeum, served as the chair of the committee, which included representatives from the Smithsonian Institution, the University of Virginia, the Winterthur Museum, the Ford Foundation, and the National Park Service, as well as the National Trust. Two subcommittees were established—one on Architectural Curricula and one on the Conservation of the Traditional Building Crafts. The final report of the two subcommittees is known generally as the Whitehill Report, and was approved by the Board of the National Trust during its annual meeting in October 1967. An extant copy of the report was scanned from a manuscript provided by John Fugelso of the Pennsylvania Historical and Museum Commission. It is reproduced in full with permission of the National Trust for Historic Preservation at <http://www.itei-ites.org>.

⁴ *Ibid.*, <http://www.itei-ites.org>, May 18, 2005.

⁵ John Fugelso, “Research Reveals Vitality in the Building Trades,” *Preservation News* supplement “Preservation Training for the Building Trades” (Washington, D.C.: National Trust for Historic Preservation, 1977).

⁶ U.S. Congress, Office of Technology Assessment, *Technologies for Prehistoric and Historic Preservation*, OTA-E-319 (Wash-



ington, D.C.: U.S. Government Printing Office, September, 1986), p. 153.

⁷ World Monuments Fund, *Employment Strategies of the Restoration Arts: Craft Training in the Service of Historic Preservation*, Report of a Symposium Organized by the World Monuments Fund July 26-28, 1993 (ISBN 0 9627931 3 2), p. 5.

⁸ David Pye, *The Nature and Art of Workmanship* (Cambridge University Press, 1968), p. 4.

The International Preservation Trades Workshop presented annually by PTN features hands-on demonstrations of all of the trades employed in historic preservation projects. Photo by Lisa Sasser.

Trades Education and the Matrix: Academic, Vocational, and Experiential

..... Bryan Blundell

What is trades education? How does trades education compare with what we normally view as education within the American culture? According to the *Cambridge Advanced Learner's Dictionary*, the definitions for "education" are very much based on our traditional institutions of teaching.

Educate (v.): to teach someone, especially using the formal system of school, college or university.

Educated (adj.): having learned a lot at school or university and having a good level of knowledge.

Education (n.): the process of teaching or learning in a school or college, or the knowledge that you get from this.

These definitions represent a more narrow view of the education process than what is envisioned by the Preservation Trades Network (PTN) for educating those interested in the construction and preservation trades. PTN is working to promote

the concept of the "Trades Education Matrix." The matrix is a framework that establishes a set of conditions that need to be met to obtain an educational goal. Three main categories of educational processes make up the matrix: academic, vocational, and experiential.

The *academic* process is made up of studying and thinking about topics related to history, language, math, the sciences, and theory. The academic process typically occurs in the traditional classroom setting, in self-directed correspondent classes, or in study groups that may now include internet classes.

The *vocational* portion of the matrix includes hands-on labs that introduce physical processes, material sciences, and tool usage to develop a basic inventory of skills and controlled experiences. The vocational process can also be conducted within a job environment if a purposeful and thorough introductory training session is provided.

The *experiential* section



Academic

Shortcomings of Current Trades Education

of the matrix involves working on specific types of real-world projects to obtain knowledge or skills that build on and round out the academic and vocational background. Doing, seeing, and feeling in a real-world setting can provide the individual with the experience that can supplement the academic and vocational learning.

The academic and vocational parts of the matrix currently exist in various forms, with established and approved means for measuring levels of accomplishment. The challenge before us is to establish criteria so that the experiential part of the education matrix is measurable, thus combining the three segments into an interactive whole.

One of the major reasons for the predominance of the classroom-based approach to trades education is that the classroom setting is cost effective. There is limited need for space and equipment (room, books, desks, and chalk or marker boards). What students retain from readings and lectures can be measured by written tests.

This emphasis on academic or classroom learning is not in itself a bad thing. But combine this with society's generally negative attitude toward people in jobs involving physical labor, and the result is a lack of interest and investment for developing innovative educational pro-

While traditional academic classes provide an efficient and cost-effective way to teach the history, language, math, science, and theory of the trades, they don't give students the experience needed to fine-tune physical skills and gain practical judgment.

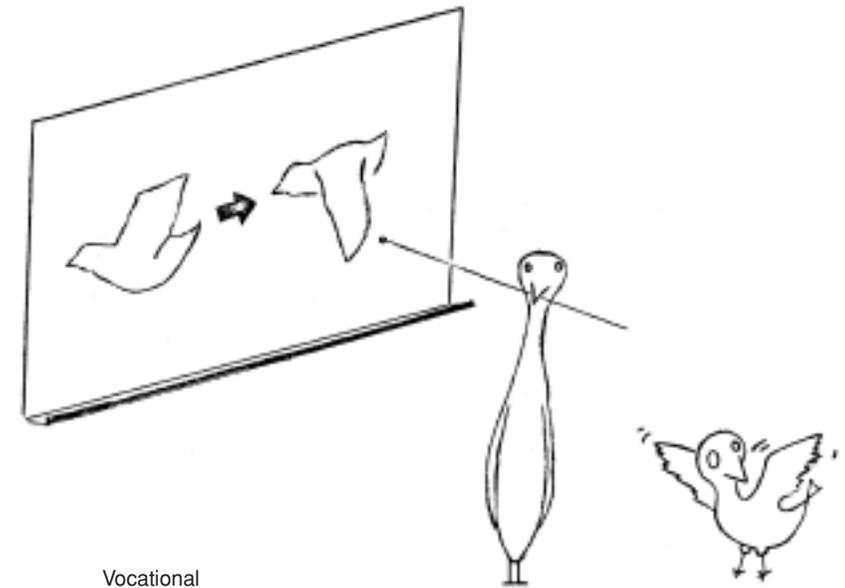
grams for those pursuing careers in the preservation trades.

Yet in other professions that require the fine-tuning of physical abilities, there has been an investment in programs to teach such skills: Think of professional athletes or surgeons. It would be interesting to see what could result if a reasonable level of effort and investment was made to supplement classroom with experiential learning in high school and college programs for those learning to construct our built environment.

Other factors come into play when dealing with trades education. In a simplistic way, the construction industry has been split into two camps—workers familiar with new construction on one side and those dealing with existing structures on the other side. The general view is that in new construction, workers just need to be able to follow the instructions of the product manufacturers to successfully install the various building components. The assumption is that in the new construction field, the standardization of building elements into modular components makes for a straightforward process of installation.

On the other hand, when dealing with existing structures, workers need experience and knowledge of traditional and even obsolete materials and techniques as well as an understanding of the interrelationships between building components. Part of the education challenge is to provide a general level of background to all those entering the construction field. Individuals in new construction need to be able to understand materials, techniques, and the basic interaction of components. They need to know not only how to assemble well but also how to identify and correct problems during the construction process. If the entry level of education is successful, then individuals will have greater options in developing their career paths with areas of specialization, including the restoration of older buildings.

A more robust system of trades education needs to evolve to attract more people to the preservation trades. This will not happen overnight. In many ways the knowledge base of traditional construction materials and methods has been on the decline for more than a century, starting with the industrial revolution. The greatest part of that decline has



Vocational

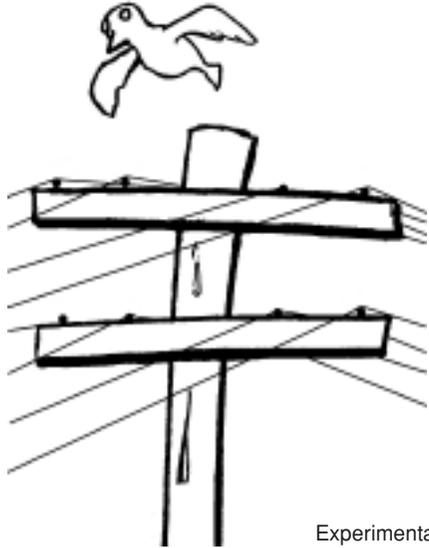
occurred since the end of World War II. A significant number of people in the first generation after WWII may have had direct contact with craftspeople considered highly skilled, knowledgeable, and respected in one or more of the construction fields. The next generation may have known of such individuals in a third-party context but not through direct contact. This means that chain of continuity in knowledge and experience between the generations has greatly deteriorated. Even with serious new efforts to reestablish this legacy, it may still take

two generations for it to become common within the fabric of society.

A New, Graduated Approach

When trying to develop an educational system, it seems almost impossible to lay out a plan of education that covers the multitude of niches that make up the careers available in the construction trades. But if we take a new look at the stages of the old system of apprenticeship, journeyman, and master, we can start to imagine a more up-to-date process of education and advancement.

On their way to a trades career, students need to test and expand their skills and knowledge through hands-on labs or on-site work, guided by seasoned professionals.



Experimental

Field experience is what makes the academic and vocation efforts valid.

Each stage represents not only a possible progression through a chosen career but also an evolution of knowledge and awareness. The goal of the educational system should be to make pathways available so that the most talented and ambitious can succeed. If this is done, then opportunities should be available for whatever level of interest and achievement is desired. Using the PTN matrix, paths can be developed for all sorts of educational goals.

The educational path to learning a trade involves several steps. The first step might be to train an individual to be productive at a basic

level and to be able to be employed. This step is only the beginning of a trades education. Individuals can be taught to perform the skills required to complete many tasks that they do not understand. However, this does not do very much toward developing their understanding and ability to avoid mistakes. They need to grasp the logic and reasoning behind the actions so that a higher level of experience can be gained. This experience further develops the individual's abilities, creativity, and sense of self worth.

At the apprentice level, the goal would be exposure to and retention of basic levels of information relevant to construction in general and specific to the field that the apprentice intends to enter. The apprentice level is heavy on the teaching and learning dynamics with an emphasis on introducing vocabulary, history, materials, and basic skills. The fundamental objective of the apprentice period would be to develop an individual who has completed a basic level of education (exposure to information and skills) so that he or she can be reasonably productive within an ordinary work environment. Ongoing academic,

vocational, and experiential efforts over an appropriate period of time would culminate in a testing and review process that would determine if the individual had successfully completed the apprenticeship process. Various levels or versions of the matrix may need to be completed within the apprentice stage.

Upon completing the apprentice stage, the individual would be considered a journeyman. Historically this was someone who could venture out (journey) and work under different masters, learning about and experiencing a greater number of materials, techniques, and methods. In the current context, it could be a process of developing an individual matrix of academic, vocational, and experiential efforts that would achieve a specific educational goal. This process might be compared to earning Boy Scout merit badges or individual certificates of skill and knowledge. Based on a system like this, it would be easier for a tradesperson to show a resume of experience and ability, rather than just listing and describing specific jobs and contacts.

Through the matrix process, the actual field experience is what makes the academic and vocational efforts valid.

The master level could acknowledge individuals who have achieved a series of goals including overall academic, vocational, and experiential efforts as well as leadership ability, teaching skills, and other social goals.

Developing a Database of Educational Opportunities

What is needed to increase educational opportunities for the building trades? A database must be developed that identifies educational programs, whether they are offered by institutions or by qualified individuals. By researching and documenting educational opportunities, several things become possible:

1. An individual can use the resource to identify the possible components that can be developed into a personal education matrix.

2. Individuals, organizations, and institutions that offer educational opportunities within a particular field can be aware of each other and develop a network of contacts.

3. Among this network of contacts, educational standards within a given field or even specialty niche within a given field can be reviewed and, ideally, agreed upon.

4. The resulting standards within a field can then be used to identify individuals capable of advising on and reviewing an education matrix.

With all of the challenges facing the efforts to improve trades education, it is impossible for one group or organization to make a significant impact by itself. By combining efforts through the networking process, the resources, the energy, the contributions, and knowledge can be expanded exponentially.

PTN has outlined plans to begin the research for the international education resource database. This is a huge undertaking and PTN will need the help of the international community to identify the institutions and individuals that might be appropriate for the database.

Establishing the Right Mix

The tricky part in all of this will be to set the criteria for

the individual education matrix and evaluate the results. What is the correct mix of academic, vocational, and experiential learning needed to achieve the desired ends at each level of the educational process? It will take a lot of input to develop this concept. Please join in the effort to improve trades education.

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Bryan Blundell is the managing director of the Preservation Trades Network.

The overarching views behind the PTN's education initiative for the construction trades are that:

- Excellence in the built environment is fundamentally dependent on the quality, availability, and viability of skilled trades.
- The trades are represented in the knowledge, skill, and professional judgment applied by people engaged in construction, repair, and conservation.
- The sectors of the construction trades that are involved in the maintenance, repair, and long-term care of the built environment work both within and outside the building industry and the preservation mainstream.
- The work of the trades embraces the continuity of traditional craft practices, and the understanding to incorporate appropriate new technologies, materials, and methods.
- Development of trade skills, whether through apprenticeship, experiential learning, or established programs is a lifelong process.
- Opportunities for education, employment, and compensation of people in the trades are reflected in the quality of the built environment and the effective stewardship of cultural heritage.

Lessons for Introducing Young People to the Traditional Building and Preservation Arts

.....*Morris Hylton III*

Integrating building trades into all levels of education is one of the goals of the Preservation Trades Network's International Trades Education Initiative (ITEI). From elementary school on up, it is important for youth to have opportunities to study the built heritage and the people and processes employed to create and sustain that heritage. These programs for young people play a vital role in ensuring that the traditional building trades are accessible, understood, and valued by the public. In addition to fostering a deeper appreciation for craftsmanship, hands-on learning in the trades can ignite a genuine interest in the building arts and preservation and help recruit the next generation of craftspeople needed to care for America's historic architecture.

There are a multitude of short courses, workshops, and summer programs that use hands-on experiences, particularly problem-based learning, to teach elementary, mid-

dle, and high school students about architecture, urban design, and historic buildings. Two specific stages in the education continuum are worth examining: 1) a child's first introduction to design, buildings, and construction, and 2) young adults' first hands-on learning experience in the building trades. A sampling of existing programs, both within and outside the preservation community, demonstrates the range of concepts and curricula that have been developed to introduce young audiences to the building arts and preservation.

Local Preservation Organizations: Friends of the Upper East Side Historic Districts, New York City

Many local preservation organizations have developed programs targeting elementary and middle school students. New York City's Friends of the Upper East Side Historic Districts offers an in-school architectural education course for



The Preservation Arts & Technology program at the Brooklyn High School of the Arts is the first program of its kind in the nation to integrate cultural heritage conservation into a public school curriculum. Photo courtesy of the New Jersey Institute of Technology's Center for Architecture and Building Science Research.

second and fourth graders (described at www.friends-ues.org/youngfriends.htm) in which trained docents teach students the language of buildings through a series of exercises and a scavenger hunt that capitalize on the diversity of Manhattan's streetscapes.

Like many other programs, this curriculum only touches upon building materials and methods, focusing more on the features that characterize an architectural style. However, this and similar programs demonstrate the potential for collaboration, as many communities have local historical societies or museums or preservation advocacy organizations with existing programs that could be

adapted or enhanced with information about the traditional building arts.

Allied Professional and Industry Groups: American Institute of Architects

Most state chapters of the American Institute of Architects (AIA) have developed courses that introduce children and young adults to the study of architecture and the built environment. Learning By Design: NY (www.aiany.org/nyfoundation/learning.html) offers in-school classes in which program educators work with teachers to deliver hands-on lessons, including Introduction to Architecture; Neighborhood Architecture; How Buildings Work; and Climate, Geography and Architecture. One of the four primary goals of LBD: NY is "to introduce students to careers in architecture, design, engineering, historic preservation, and construction."

The strength of the New York program is twofold. First, it educates the educators through "Professional Development Workshops" in which teachers learn how to use the built environment to enrich student learning and at the same time meet city and state

educational standards. Second, the program has maximized resources by partnering with cultural institutions to extend their existing arts education offerings to include architecture and design studies.

In Chicago in 2004, the AIA sponsored a national symposium on K-12 design education. Convened by the American Architectural Foundation, one of the symposium's goals was to teach participants "strategies for creating and sustaining a design-based education program in their community and/or school system." A partnership with the AIA could prove beneficial in introducing a large audience to the significance of and relationship between quality design and craftsmanship.

Museum Programs: National Building Museum

At the National Building Museum in Washington, D.C., (www.nbm.org) short courses allow groups of students, ages 5 through 13, to engage in design and construction processes. Hands-on activities encourage students to explore the built environment and to understand that their design decisions can have a positive

impact on their surroundings. Students leave classes with self-constructed projects, such as a model of an adobe house or suspension bridge. Teachers are given packets that provide information on ways to integrate design and construction into lesson plans.

The National Building Museum's Early American Architecture course examines five historic residential types by geographic region, such as the Northeast saltbox and the Midwest earth lodge. Working in groups, students survey building materials, maps, and photographs and construct models of the houses. The educational programs of the museum take a holistic, multidisciplinary approach to design and construction, with an emphasis on problem solving.

Beyond its educational programs, the National Building Museum's annual "Festival of the Building Arts" brings in craftspeople from organizations such as the International Masonry Institute and the Blacksmiths' Guild of the Potomac to demonstrate their respective trades to children and their parents. A significant aspect of the National Building Museum's exhibitions, programs, and events involves providing the opportunity for children and young adults to

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These programs for young people play a vital role in ensuring that the traditional building trades are accessible, understood, and valued by the public.

handle and use tools and to interact with craftspeople.

National Volunteer Organizations: Landmark Volunteers

At the high school level, Landmark Volunteers (www.volunteers.com) is a national nonprofit service organization for students ages 14 and up. Founded in 1991, the program offers high schoolers the opportunity to spend two weeks each summer working at a historical, cultural, environmental, or service institution. The students, most of whom are preparing for college, engage in on-site manual labor such as constructing a fence, painting a building, or some other form of cyclical maintenance. The project and learning objectives are defined by the participating institutions, which have included Colonial Williamsburg, Hancock Shaker Village in Massachusetts, Mesa Verde National Park in Colorado, and other sites across the U.S. Landmark Volunteers offers the opportunity to develop a construction or restoration-based project for students who may not otherwise choose to take a vocational course in the building trades. Hands-on, site-specific summer programs such

as this one could serve to build a larger constituency for the traditional building trades and preservation for the long term.

Public Educational System: Preservation Arts & Technology High School

The programs just described serve invaluable roles by supplementing traditional classroom learning and introducing children and young adults to architecture, preservation, and construction. However, a high school in New York City offers a different model by operating within the public school system.

The Preservation Arts & Technology program at the Brooklyn High School of the Arts in New York—the first program of its kind in the United States—integrates cultural heritage conservation into the public educational system and provides occupational-based learning in the traditional building trades and preservation. By merging hands-on instruction in trades and conservation with a full academic curriculum and requiring a summer apprenticeship, the high school adheres to nationally recognized standards for vocational education while meeting rigor-

ous academic standards set by New York City and State.

The concept of embedding cultural heritage preservation training in the public educational system originated at a 1993 symposium sponsored by the World Monuments Fund, “Employment Strategies for the Restoration Arts: Craft Training in the Service of Historic Preservation.” One issue highlighted by the symposium was the limited number of existing programs to train people in the traditional craft skills needed to maintain the nation’s architectural heritage. (For additional information on this, see “Why Trades Matter for Preservation: A Half-Century of Promoting Traditional Building Skills for Preservation” in this issue.)

Based in part on the symposium’s findings, the New Jersey Institute of Technology’s Center for Architecture and Building Science Research, led by director Kate Ottavino, partnered with the World Monuments Fund to develop a magnet-school type of curriculum with the overarching theme of heritage preservation. Traditional subjects such as literature and history are taught using New York City and international landmarks, referred to as “benchmarks.”



For example, teachers use benchmarks to enhance lessons on a particular historical period or event or social or cultural movement. The materials, design, construction, and preservation of individual benchmarks are employed to illustrate mathematical and scientific concepts and to enhance more conventional instruction techniques. Mirroring the interdisciplinary nature of historic preservation, the theme-base curriculum enables teachers to make dynamic connections between their respective fields.

While all students attending the Brooklyn High School of the Arts are exposed to historic architecture and preservation, those students majoring in preser-

The Preservation Arts & Technology program combines academic classes with vocational training in the traditional building trades and preservation. Mirroring the interdisciplinary nature of the preservation field, instructors use local and international landmarks to illustrate lessons in academic subjects from science and math to history and literature. Photo courtesy of the New Jersey Institute of Technology’s Center for Architecture and Building Science Research.



Students of the Preservation Arts & Technology program are guaranteed paid summer apprenticeships with building trade firms or internships with professional and nonprofit organizations. Photo courtesy of New Jersey Institute of Technology's Center for Architecture and Building Science Research.

vation arts take additional classes focusing on philosophical and technical approaches to preservation. Again, benchmarks, in this instance New York City historic sites and landmarks, serve as teaching aids to illustrate concepts. By relying on local landmarks, students have the opportunity to visit the sites and interact with the organizations and individuals charged with caring for them. For example, the tenth grade course benchmark is the

United States Custom House in Lower Manhattan, a Beaux Arts building designed by Cass Gilbert (1899-1907). Among the various lesson topics is a science discussion that illustrates the effects of acid rain by looking at how acids, bases, and salts have contributed to the deterioration of the U.S. Custom House's stone facade.

Hands-on learning opportunities expose students to different traditional building crafts and material conservation methods and help the school meet the Career Technical Education (CTE) or vocational requirements as established by the federal government and regulated by the state. A required summer internship or apprenticeship also allows students to obtain the hours in supervised occupational learning necessary to meet national vocational education standards. Supported partly by New York City's Youth Employment Program, the six-week summer internships and apprenticeships afford students real-world experiences in professional offices, public agencies, nonprofit organizations, and trade firms specializing in restoration. Summer apprenticeships have focused on stained glass, stone carving, and metallurgy,

to name a few specialties.

Since its inception in 2000, Preservation Arts & Technology High School has attracted an ever-increasing number of students. This year's ninth grade class numbered more than 25, doubling the initial enrollment four years ago. The success of the program to date can be attributed to several factors. First, it relies on a private-public partnership. Foundations and nonprofit organizations supplement public funding for curriculum and teacher development, while New York City's Board of Education provides the annual financial support necessary to sustain the program. Second, the high school was created and developed within the parameters of existing definitions for vocational education and established academic standards. The Preservation Arts & Technology curriculum is based upon the New York City Board of Education's New Performance Standards and the New York State Learning Standards and, as previously stated, meets nationally recognized Career Technical Education requirements. Third, the apprenticeship component, which has grown exponentially in the past few years, connects the school to a wide

range of public agencies and private organizations and businesses that offer professional internships and building trade apprenticeships and support the school in various ways. In addition, the apprenticeship program has proven an important tool in the recruitment of new students.

Conclusion

As demonstrated by these examples, and numerous others, the process of integrating architecture, preservation, and construction into the earliest stages of education has begun. Each of these programs affords an opportunity for the ever-expanding network of building arts organizations to collaborate with organizations both within and outside the historic preservation community to introduce a new generation of craftspeople to the traditional building trades.

Building on this good start, here are suggestions for others looking for ways to introduce young people to the traditional building arts:

- Collaborate with organizations such as the American Institute of Architects, National Building Museum, and Landmark Volunteers to augment existing programs and create new ones.

- Develop enrichment programs that impart teaching skills to building tradespeople so that they may more effectively share their knowledge, experience, and skills.

- Identify existing programs at the elementary and high school levels that could be easily expanded to include traditional building trades and preservation.

- Collaborate with existing high school and post-secondary level vocational and technical trades programs to offer opportunities for students to explore traditional building trades and preservation.

- Encourage the adoption of the Preservation Arts & Technology program concept in other high schools through the United States.

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Morris (Marty) Hylton III is the new projects development manager for the World Monuments Fund, the foremost nonprofit organization dedicated to preserving endangered cultural heritage sites internationally. He manages the Robert W. Wilson Challenge to Conserve Our Heritage, a matching grant program that provides up to \$10 million annually for field conservation work at architecturally significant sites globally.

Putting Value Back Into Craft Education

..... Gerard C. J. Lynch

A craft is learned and refined through years of dedicated study and relevant full-time practice, observing and being surrounded by those more proficient—learning through participation. This teaches the correct selection and use of tools, equipment, and materials and develops the ability to know what they are, and are not, capable of in the production of first-class work.

Quality craft education and training ensures a sound understanding of what underpins all craftsmanship—traditional and modern materials, tools, equipment, technology, and the skills of how to prepare and correctly apply them. It develops an enquiring mind that seeks to evaluate work and to reason through the inevitable problems in the pursuit of quality work. Craft students need clearly defined high standards and ideals to aspire to, so that ultimately they will be capable of producing work that is equal to that created by their historic forebears. If made aware of these objectives from the out-

set of learning a craft and to readily see that this is realistically achievable, most will recognize the value of dedicated study and practice.

Education or Training?

Differentiating craft education from training can be tricky, as in many respects they are two sides of the same coin, and ongoing throughout a working life. The writer sees **education** as the acquisition of the practical, theoretical, arithmetical, and technological knowledge that provides the foundation for a craft and its skills, by studying relevant textbooks, attending specified formal lessons, and through ongoing oral discourse with those of skill, knowledge, and experience from whom one is learning. **Training** is the organized sequential acquisition, development, and refinement of the numerous elementary and advanced practical skills that are part of a craft, by being surrounded by, observing, and learning from those

who are more proficient in a certain craft.

Apprenticeships

Apprenticeships—being taught, over a number of years, about traditional and contemporary craft materials, tools, and techniques—are the bedrock of craft heritage. Historically apprenticeships produced “journeymen” and, with some years of qualified experience, future craftsmen capable of “working to demand,” balancing the full needs of the building industry, whether new-build or the repair or restoration of traditionally constructed buildings. The apprentice learned his craft by “time serving,” legally bound to the master/company through a signed legal contract (termed the “indenture”) that established the responsibilities and obligations of both parties.

On-the-job apprenticeships worked well from the medieval period through to the late 19th century, but were not sufficient once the Industrial Revolution introduced new building materials and techniques. In the United Kingdom the response to these changes was to offer apprenticeships that provided a combination of on-site experience linked to prescribed formal,

linear education and specific skill training at state-funded colleges, guided by a national examining body: “The City and Guilds of the London Institute” (CGLI). Students taught by well-qualified craftsmen/lecturers learned quickly the broader range of skills, theory, and technologies that most masters could no longer fully teach. This delivery balanced the overall skill needs for the whole building industry.

After the Second World War, the advent and rapid progress of relatively simple fixing skills and faster construction techniques meant that building projects increasingly used cheaper semi-skilled labor. Fewer yards and craft workshops employed a hierarchical workforce of builders who had invested in apprenticeships to sustain their long-term viable future. A new construction industry dominated by developers and speculators, rather than builders, encouraged itinerant, inward-looking subcontractors who, due to the nature of priced contracts, were too busy to take the time, or spend the money, to train. This worked satisfactorily while developers were able to draw out of the pool of “time-served” craftsmen from

traditional companies, with enticing higher “piece-work” money than standard “day rates.” But, with insufficient recruits on craft courses and the content diluted to speed up training, the industry was unable to replace the retiring skilled and experienced craftsmen, and its failure to promote and maintain high quality work was soon exposed.

Current Craft Training

Craft training in the United Kingdom since the early 1990s has been delivered through the “National Vocational Qualification” (NVQ) system, designed to standardize qualifications throughout the industry, guaranteeing competence of “trainees” by demonstrating that they satisfy specific performance standards. This replaced indentured time-served and in-house apprenticeships with programs for students (employed or not) delivered in short, modular, assessment-led units. Though driven by the need to reduce public expenditure, it is ironically delivered through vast, expensive, and wholly unnecessary bureaucracy that didn’t previously exist. It is skewed in delivery toward the narrow,

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Conservation and restoration were, and must never be, divorced from their craft home.
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modern construction needs of both the “Industrial Training Boards” and powerful large contractors, demanding basic “fixing” skills with simplistic levels of underlying theory—“Bricklaying” rather than “Brickwork.” This ignores the history of the crafts and their individual, unique heritage, which craftspeople have a duty to nurture and pass on to future generations; yet today’s workers are disenfranchised from any say in their future.

The former CGLI apprenticeship system had its deficiencies: no national, unified system of performance criteria to grade practical work in college workshops, linked to acceptable standards for site work; and subjective marking by the class tutor. Bright students could gain excellent marks for academic work but barely pass the all-important practical tests, yet still become “fully qualified.” Though these

particular deficiencies, to the credit of NVQ, have been addressed with a degree of success, the former system, with superior overall college-based study, should never have been scrapped, only fine-tuned. Many employers in the UK voice concern that many NVQ-qualified craftspeople are not as proficient as required, limiting secure employment opportunities. The writer’s experience supports this opinion, as he has many bricklayers, fully qualified by NVQ standards, come to him to learn higher-level craft skills, yet few possess the breadth of craft knowledge or advanced tool skills necessary to properly progress.

Industry and educators failing to recognize and reverse this trend are losing the highest expressions of the crafts to narrowly tutored “specialists” and “conservators,” unqualified in them. Conservation and restoration were, and must never be, divorced from their craft home. They are an essential part of the full repertoire of a qualified craftsman—as they have always been down through history. The writer’s apprenticeship, in the traditional and modern aspects of his craft, combined with hard work, study, and dedication, fully equipped him to work

on new build and the repair or restoration of all periods of historic brickwork, as it was deemed part of craftsman’s broad range of skills. In this respect one applauds the ethos being engendered at the new American College of the Building Arts, in Charleston, S.C., where they uphold many of the writer’s beliefs on the importance of good quality and all-embracing craft education and accompanying training (www.buildingartscollege.us).

Modern craft skills training is simply not balancing the needs of the overall building industry.

Regaining the Balance: Delivering Craft Education and Training

Regaining the former balance requires putting value back into craft education and training, to attract and retain dedicated students who have the potential to achieve fully respected qualifications by all professionals across the whole industry. Vital to its success will be the professional retention of the foremost peer-respected, experienced, and highly skilled master craftspeople as instructors. Program planners will also need to con-

sult with relevant industrial organizations and professional educators, to design intuitive, validated, linear programs with clearly defined routes from start to completion, through a well-thought-out craft syllabus. This would guide a pragmatically delivered and cross-subject related craft curriculum of skills, theory, and related technology, underpinned with historical background to achieve meaningful context.

Students once more must be connected to traditional materials, their preparation, and the skills of handcrafting and use, to be able to eventually replicate selected enrichments from past centuries with authenticity within their apprenticeship course. Yet they must also fully learn about up-to-date factory-made materials, tools, equipment, and associated craft techniques for contemporary construction.

Bureaucracy and overhead costs for this education and training should be kept low, so that most funding is spent within workshops and classrooms. With appropriate levels of funding by colleges, with sponsorships, and with financial and in-kind support from stakeholders, institutions should be able to provide first-class facilities to teach in and

programs of the quality to earn international recognition.

Recruitment of Students

This approach requires recruiting students with the right attitude, aptitude, and ability to succeed in the crafts. Young people today, however, are often influenced by prevailing social attitudes that see little virtue in the ethos of working with one's hands and taking years of study to qualify. This must be addressed so that both parents and their children view traditional skilled crafts as dignified and fulfilling, with real status.

Any new craft education and training programs must also be able to serve semi-skilled adults working within the crafts, to harness and develop any potential demonstrated. Most have picked up craft skills on site and produce acceptable standards of work. They need to be made aware of the benefits of developing knowledge and skills to increase pride in their craft, to enhance their abilities, and to obtain full qualification that will provide a platform for future advancement in the crafts and, perhaps later, other aspects of the construction industry. To encourage them

to register and attend relevant courses at the appropriate level, credits can be granted for their existing skills and experience.

As head of Trowel Trades at Bedford College, Bedford, England (1987-92), the writer knows that many adult students are nervous about re-entering formal education years after leaving school, where perhaps they found academic learning difficult. Most underestimate how maturity has made them receptive to learning. Adult attendance has positive effects on younger students, brings site experiences into the classroom, and raises levels of class behavior. Some, fed-up with years of routine craftwork on new-build, find through their studies an attraction to the more sensitive areas of conservative repair and restoration, providing a whole new challenge for the mature craftsman.

The Learning Environment

Part- or full-time formal study at approved colleges must provide a combination of education and training linked to craft history and architecture. Too many workers today lack any empathetic understanding of the craft methods, tools, and

historical practices of the buildings they work on. This knowledge is vital if we are to ensure that craftspeople can confidently meet the combined practical demands of modern and traditional work to the highest standards.

This study in the colleges should be supplemented, where appropriate, by time on high-level and specialized craftwork alongside master craftspeople, in their workshops or on site. A true master not only teaches verbally but also by direct example, nor does he just inform apprentices of values but reveals them through conduct and interrelationships. Students will learn lessons about resourcefulness that can never be gleaned from books, and be stimulated and inspired by witnessing a willingness and dedication to pursue perfection, no matter what it takes—the hallmark of true craftsmanship.

A Student-Employer Agreement

After the student completes formal school education and decides to learn a craft, a learning agreement based on the “indenture” could be drawn up that binds the apprentice and company to an approved complementary course. This would

assign responsibility to the student to be receptive to work and learning the craft, attend agreed courses, be well behaved, and safeguard and uphold craft knowledge and skills. The agreement would also set down employer and college responsibilities to provide safe, productive work and a conducive learning environment, and to meet the specified terms of the appropriate year of apprenticeship. The examining authority that sets the syllabi and oversees the apprenticeship would monitor progress and compensation.

Upon successful completion by the student, the agreement could be formally signed off by employer, college, and examining bodies and presented to the newly qualified craftsman in a formal ceremony similar to university graduation day. Names and qualifications could then be added to an approved national and international register of qualified craftsmen.

Conclusion

Radical change is necessary for current craft education and training. There is no coherent future vision in current craft training systems, only optimism that somehow things will simply work out in



the future. They will not! We live in an age of image makeovers, and the recent revival of the name “apprentice” instead of “trainee” is a good example of trying to recreate an image; but as with most image makeovers, this lacks real meaning. Those of us fortunate to have had all-embracing time-served craft apprenticeships, and to have worked alongside and learned from older craftsmen possess-

This brickwork project, involving various traditional high-level skills, was designed by Dr. Lynch and built by his craft students while he was head of Trowel Trades at Bedford College of Higher Education, Bedford, England, in the late 1980s. Photo by Gerard C.J. Lynch.

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We must invest quality time, energy, and money into well-designed craft education and training, studying and respecting both past and modern aspects, and encourage self-belief in our future craftspeople—for we are no less able today than historic craftsmen of producing the masterpieces we marvel at today.
.....

ing traditional skills and knowledge, are now around 50 years of age plus. When we, and particularly the master craftsmen, are gone, that historic craft link will be forever broken.

We must invest quality time, energy, and money into well-designed craft education and training, studying and respecting both past and modern aspects, and encourage self-belief in our future craftspeople—for we are no less able today than historic craftsmen of producing the masterpieces we marvel at today. How can we ask professionals and clients whose employment we seek to value our crafts and craftspeople if we fail to place value and pride in them first? Only by demanding quality apprenticeships and learning environments that develop an ethos clearly seen to be producing superb craftspeople, employed in an industry that promotes quality of work and service, can we ask others to also place value on our once-noble crafts.

One ignores a craft's history, knowledge, and skills at one's peril, perhaps best summed up by this old Chinese proverb:

If a man dwells on the past then he robs the present. But if a

man ignores the past then he may rob the future. The seeds of our destiny are nurtured by the roots of the past.
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Dr. Gerard C. J. Lynch, LCG, Cert Ed. MA (Dist), PhD, is an internationally acknowledged master bricklayer, historic brickwork consultant, author, and educator based in Buckinghamshire, England.

NOTE

¹ Industrial Training Boards (ITBs) are government-employer-union partnerships established by the 1964 Industrial Training Act and financed by employers through a statutory levy/grant system. The Construction Industry Training Board, the relevant board for the building industry, provides assistance in all aspects of recruiting, training, and qualifying the construction workforce. It also works with partners in industry and government to improve competitiveness of the industry as a whole.

Thoughts on Developing and Promoting Preservation Building Trades Training

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David C. Overholt

The Best Preparation

The conservation of the built environment brings together educators with administrators, artists with engineers, architects with artisans, and historians with conservation scientists—creating an unusual mix of disciplines, orchestrated to preserve a place of significance. Much like musicians responding to a conductor, composer, promoter, and audience, the mechanics and technicians of the preservation trades are the people who actually lay their hands on what is being preserved, in concert with others who analyze the historic fabric, draw up the plans, raise the money, and interpret the history. Ultimately, the quality of performance depends on the virtuosity of the musicians. The conservation of historic places, under the direction of any number of planners and design professionals, is dependent on the proficiency of the conservators, the trade mechanics, and specialized technicians who have chosen to pursue careers in the broad field of historic preservation.

Serious academic preparation along with practical hands-on training is critical. Academic scholarship for building trades personnel provides tools for the preservation toolbox that, at a minimum, should include an understanding of preservation philosophies, architectural history, material science, and site management. Most trades training programs give students a focused experience with materials and processes. Equally important is a basic education in buildings systems, techniques of non-destructive investigation, modern conservation materials and methodologies, and planning and documentation.

Mastering a trade specialty and also understanding the broad overview of the complexities in the preservation field is ideal. The person who does this is truly a preservationist. He or she is comfortable contemplating traditional and modern approaches to building conservation and can communicate easily with the client, design professionals, and technicians on the scaffolding.

Some of the skills that we associate with preservation are simply the skills of the traditional building trades. In most building trades, if the technicians have been given adequate training, they are prepared for the work necessary to preserve old buildings. A good roofer, for instance, can work with slate, tile, and sheet-metal as well as modern materials used on contemporary buildings. Likewise, an apprentice mason needs to know about brick bonding, closers, and fire box proportions to master that trade—knowledge that can most easily be gleaned from working on historic structures and understanding how they are built. Carpenters get plenty of opportunities to disassemble, conserve, or replace wood, because it deteriorates faster than most other materials on historic buildings.

Trades training for preservation needs to strike a balance between the traditional skills and up-to-date conservation methodologies. A large proportion of work that trade mechanics, architects, and other professionals in the construction business encounter over the span of their careers entails the repair and maintenance of existing, and often historic, structures—not new buildings as many freshly minted trades

people and designers may expect. Armed with fundamental skills in combination with specialized training in historic preservation, a tradesperson will have maximum flexibility to work on both new and old structures. Such an individual is more valuable to an employer and certainly will have greater opportunities to work as an independent, self-employed contractor.

Apprenticeships

Perhaps the final test in the resolve of preservationists to promote training in the trades will be to encourage the labor unions to adopt strategies for focused training in, carpentry, masonry, metal work, roofing, glass work, and mechanical systems for historic sites. Similarly, unions would benefit by integrating historic preservation training into their mandatory apprenticeships.

After graduating from one of the trades programs, an apprentice could sign on to continue learning in the work place under the tutelage of journey- and master-level technicians and mechanics. That experience would give him or her a generous length of time to get up to speed with the rigors and realities of the job site, while earning a

decent wage and receiving health and pension benefits.

European models for specialized training programs offer us a paradigm for integrating rigorous hands-on training essential to a successful career in building conservation. A paint and finish conservator in Germany is expected to apprentice for six years, the same amount of time it takes to earn an undergraduate and masters degree in the United States. Today in the U.S., generally only unions require formal apprenticeship. Many superb mechanics manage to train themselves in a craft or trade, yet that haphazard approach is hardly recommended as the preferred way to organize an educational experience.

Career Paths and Benefits

In my experience, people are choosing to pursue preservation building trades as a career *after* getting a college education. I have seen them enter a variety of vocations in preservation work, ranging from those with traditional trade skills using fundamental methods and materials to technicians who specialize in something as focused as gilding or stained glass conserva-

tion to highly specialized conservators who lean heavily on material science.

In the process of recruiting students for training programs, I believe schools should broach the subject of money right off the bat. The prevailing wages in the trades are quite high, easily rivaling salaries at nonprofits! The work is varied, the job sites are interesting, and the various specialty fields in preservation are intellectually and physically challenging as well.

Beyond the comfortable wages and benefits that union jobs and established preservation contractors pay to employees, the field also offers workers the opportunity to move into management, start a company, or consult, as their skill levels and experience accrue. This ability to rise through the ranks, without tacitly acknowledged barriers blocking the way, is another aspect of this field that training programs should emphasize. Joining a crew, working up to foreperson, and crossing over into management, or ultimately owning a company are entirely possible and may happen with greater frequency in the construction and preservation building trades than in most careers.

Preservation Building Trades at National Trust Sites

The preservation story is always implicit in the interpretation of National Trust historic sites. We promote preservation education, whether it is research or a hands-on summer experience for preservation students from an academic program or the opportunity for students in a trades program to hone their skills. Over the years with the National Trust, I have worked closely with students from trades training programs as well as academic programs. Summer interns at the historic sites typically amass well over 300 contact hours on site, augmented by the opportunity to communicate with consultants, contractors, conservators, and Trust staff after normal work hours as well.

An innovative approach on the part of the National Trust, in conjunction with Hillier Architecture, in planning for the restoration of the exterior of Lincoln Cottage (centerpiece of the President Lincoln and Soldiers' Home National Monument in Washington, D.C.) was to engage the National Park Service, Historic Preservation Training Center in Frederick,



Work camps and intern programs at historic sites offer students and craftspeople the opportunity to learn new skills. The above photo shows a participant in an international work camp program at Lyndhurst in Tarrytown, N.Y., preparing a window jamb for painting. Photo by David Overholt.



A restoration contractor dismantles the porch at Lincoln Cottage. Photo by David Cera.

Md., to conserve window sash and doors from six openings. The crew from the training center carefully removed the windows, doors, and associated hardware from the jambs. All elements were numbered and recorded and then transported to the workshop in Frederick. Conservators analyzed the windows and doors to develop a treatment plan that respects and preserves the wear and tear of time, and guarantees the repair of all of the deteriorated areas that affect the long-range performance.

Contractors bidding on the exterior restoration sent representatives to the training center for a demonstration of techniques, and a discussion of the methods and materials used to repair the windows, doors, and hardware. Many questions were asked at this session which resulted in a clear understanding by each of the representatives as to what level of quality and methods of repair the National Trust expected from the contractor working on the exterior restoration.

A set of written guidelines outlines the array of treatments and repairs needed to return the windows and doors to service. A conservation philosophy serves as a preface for the treatment

protocol document that details how each type of repair should be accomplished, the choice of replacement glass, wood species for repairs, paint and glazing removal, painting methods, glazing, hardware conservation and carpentry techniques. The 11-page document sets criteria for wood repairs, including the use of Dutchmen repairs, slip tenons, putty bar repair, the use of epoxy both as an adhesive and as filler. *The Preservation of Historic Window Sash and Doors from the President Lincoln and Soldiers' Home National Monument, Treatment Protocol* includes a breakdown of time spent on labor for the repair work. This document was turned over to the general contractor to use as a set of treatment guidelines.

This project represents a successful collaboration with a training program — an educational component dovetailed into high-end conservation work with an outcome that can be measured and repeated. It exemplifies the type of challenging and satisfying work available to those who specialize in preservation building trades.

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David C. Overholt is the preservation projects director at President Lincoln and Soldiers' Home National Monument.